Existing Conditions

Kapahulu Avenue

Kapahulu Avenue is an arterial street connecting Kaimuki with Waikiki. This photo shows a typical crossing along a wider area of Kapahulu Avenue, with multiple lanes resulting in long crossing distances.

Posted Speed: 25mph

Campbell Avenue

Campbell Avenue is a collector road that bisects most of the residential streets. On the intersection of Campbell Avenue and Hayden Street (shown right) there is often speeding and cut-through traffic not associated with neighborhood residents.

Posted Speed: 25 mph

Campbell Avenue

This photo shows a view of Campbell Avenue heading mauka. The street is characterized by speeding and cut-through traffic.

Posted Speed: 25 mph

Existing Conditions

Kapahulu Avenue at Campbell Avenue

This photo shows a Kapahulu intersection that experiences a high level of traffic and cut-through entries to the neighborhood.

Intersection of Diamond Head Road and Makapuu Avenue

This busy intersection has a significant amount of through traffic and some speeding around the curve.

Posted Speed: 25mph

Alohea Avenue

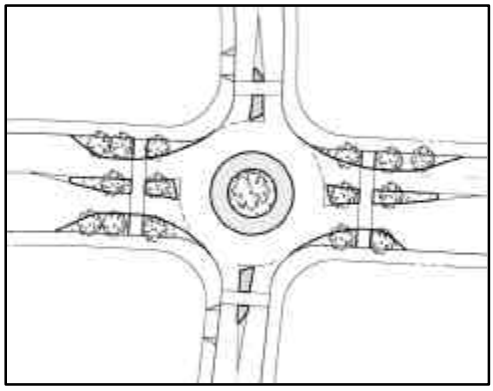
Alohea Avenue is a collector road which is characterized by speeding and cut-through traffic.

Posted Speed: 25 mph

Typical Traffic Calming Devices

Roundabouts and Mini-Roundabouts

Roundabouts and mini-roundabouts are circular, raised islands located at centers of intersections. Raised islands called "deflector islands" or "splitter islands" modify directions of vehicle travel as motorists enter roundabouts or mini-roundabouts. Roundabouts form hubs for traffic flowing around them into intersecting streets.



Roundabouts are located at intersections of local, collector or arterial streets, with one or more crossing roadways. Traffic enters and circulates within roundabouts in counter-clockwise directions and exits by turning right onto desired streets. What would normally be left-turning movements are made easier by circulating traffic around roundabouts and exiting to the right.

Benefits

Roundabouts generally add these benefits to neighborhoods:

- Roundabouts increase vehicle safety by reducing speeds and potential points of vehicle conflict (typically from 32 to 8).
- Roundabouts reduce vehicle speeds by creating horizontal deflection, or a change in direction of vehicles paths through intersections.
- Pedestrian ease of street crossing is improved by reducing the number of conflicts (from 6 to 2, and only one direction at a time), reduced speed, and reduced crossing distance. Crosswalks are typically located one car length away from the intersection, approaching drivers focus only on the pedestrian and not on traffic entering from the left.
- Roundabouts eliminate "stop" signs at intersections, reducing motorist delay, stress and vehicle noise and producing a "calming" effect on traffic flow.
- Roundabouts reduce driver confusion at intersections because drivers entering the roundabout turn right and only yield to vehicles within the roundabout. Drivers exiting the roundabout turn right into the desired street.
- Roundabouts add to the beauty of neighborhood intersections. They often add green space and landscaping and visually reduce otherwise large expanses of pavement.

Concerns and Limitations

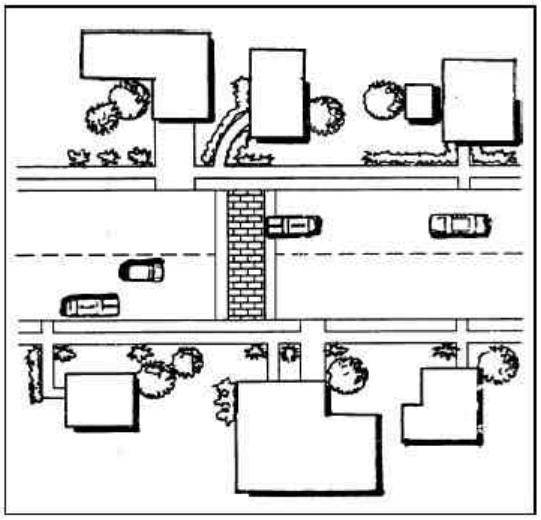
In general, roundabouts have raised the following concerns or have these limitations:

- Roundabouts may inhibit or eliminate left turning movements of large trucks, buses or emergency vehicles on streets with narrow pavement widths. Individual communities, working with the City, must determine whether or not to allow these large vehicles to turn in front of, or turn left on the left (wrong) side, of the center island. The use of "mountable" splitter islands and center islands (that larger vehicles can drive right over) increases their ability to negotiate roundabouts.
- Roundabouts are generally limited to roads with slopes of less than five percent.
- Roundabouts may require additional right-of-way to provide required turning movements for vehicles traveling through intersections.
- Roundabout channelized islands may block some driveways on one approach. In most cases this is a modest alteration of access. Local property owners benefit

by having lower, safer, traffic movement in front of their driveway and home.

Speed Tables

Speed tables (also called "flat top tables) are essentially flat-topped speed humps. Speed tables have three parts: a ramp up, a flat top section, and ramp down. They are more pleasant to drive over than speed bumps. Speed tables also do not produce as much vehicle noise. They calm speeds of wider ranges of vehicle types than humps.



Benefits

- Speed tables reduce traffic speeds by creating a vertical deflection.
- When combined with speed tables, pedestrian crossings are more visible to motorists.
- Speed tables fit in many narrow roadways, and can often be used where no curbing exists.
- Speed tables are especially helpful around schools, parks and other areas where pedestrians are present.
- Speed tables do not remove parking (unless they are combined with curb extensions).

Concerns and Limitations

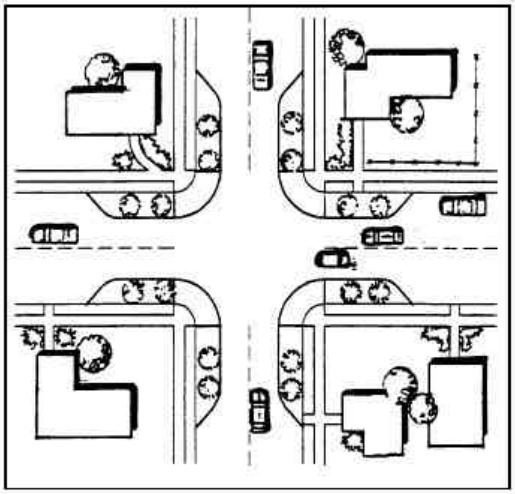
Generally speed tables have raised the following concerns or have these limitations:

Speed tables are not generally used on high volume streets, major emergency response routes or streets with major bus routes.

- Speed tables are generally limited to roads with slopes of less than five percent. When slopes are more than five percent the flat portion of the tables can be extended to 20 or more feet (such as a used in raised intersections)

Bulbouts and Curb Extensions

These two terms can be synonymous because in each case, curbs are extended toward the center of streets. Bulbouts are typically short, abrupt curb extensions used primarily at intersections and key mid-block locations. They extend out from curbs in shapes of a "bulb" reducing pavement widths.



Benefits

- Bulbouts reduce vehicle travel lane widths, decreasing distances pedestrians travel to cross streets. Bulbouts may reduce vehicle speeds by narrowing travel lanes or by introducing horizontal deflection (changing the direction of vehicle's paths).
- Bulbouts improve pedestrian safety by reducing corner radii, discouraging high speed turns. Bulbouts allow pedestrians and vehicles to safely move closer to

travel lanes, beyond parked cars, to look for oncoming traffic.
- Bulbouts protect on-street parking by providing physical barriers to keep vehicles in travel lanes.
- Bulbouts are usually designed with landscaping to be more visible to motorists and beautify roadways.

Concerns and Limitations

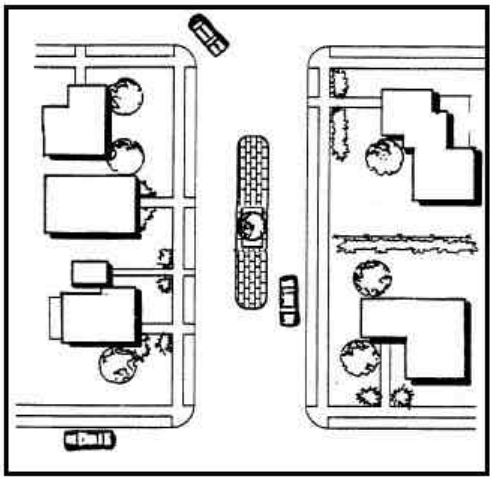
In general, speed tables have raised the following concerns or have these limitations:

- Bulbouts can affect drainage patterns on existing streets.
- Bulbouts generally require vertical landscaping or adequate street lighting to be more visible to oncoming vehicles.

Medians

Medians are raised islands located near centers of roadways. Medians are generally constructed of durable concrete or stone materials. In some cases asphalt is used for curbing.

Painted medians have little or no effect on motorists, and are not considered basic traffic calming tools.



Benefits

In general, medians provide the following benefits:

- Medians separate opposing vehicular traffic, increasing motorists' safety.
- Medians can reduce vehicle speeds by creating horizontal deflection in travel ways.
- Medians can reduce the number of conflicts that occur at any one time.
- Medians can eliminate unwanted and unsafe turning movements.
- Medians can reduce speeds by visually tightening a roadway and using up excess pavement width.
- Medians can reduce speed by allowing trees, shrubs or other landscaping. This allows motorists to gauge their speed against tall vertical features.
- Medians can reduce vehicular speeds along curves by preventing vehicles from crossing road centerlines to maintain speed.
- Medians are often combined with pedestrian crossings, providing refuge islands for pedestrians and making pedestrian crossings more noticeable to motorists. On wider medians, pedestrian crossings can include diagonal paths to direct pedestrians to face oncoming traffic and thus increase safety.
- Medians should include landscaping to increase the median's visibility to motorists and beautify roadways.

Concerns and Limitations

In general, medians have raised the following concerns or have the following limitations:

- Medians can eliminate on-street parking.
- Medians can reduce access into some driveways.
- Medians with landscaping require regular maintenance.
- Medians lacking landscaping may be difficult to detect. In this case, added markings, appropriate signs, mounding of median centers, or other features emphasize median locations.

Conceptual Design Map (insert here)